REVIEW OF INITIAL NIP 2007

Final Report on
An Assessment of the Nepal's Action on Management of Persistent Organic Pollutants (POPs) as identified in the Stockholm Convention`s 2007 National Implementation Plan

Submitted By
Center for Public Health and Environmental Development (CEPHED)
Nayabasti, Imadol, Lalitpur
Kathmandu, Nepal
Tel/Fax: +977—5201786
Web: www.cephed.org.np
Email: info@cephed.org.np

Contents

List of Tables:

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1. Introduction

The Stockholm Convention on Persistent Organic Pollutants (POPs) is an international treaty aimed at protecting human health and the environment from the harmful impacts of POPs. This Convention entered into force on 17 May 2004 and ensures environmentally sound management and disposal of POPs. Nepal signed the convention in 2004 and ratified it in 2007. Article 7 of the Convention explicitly requires every party to develop and endeavour to implement a National Implementation Plan (NIP) which the Government of Nepal prepared in 2007 under the financial assistance of Global Environment Facility (GEF). This report reviews the NIP and assesses the progress made in order to make recommendations for the next NIP.

1.1 Persistent Organic Pollutants (POPs)

POPs are problematic because of their intrinsic characteristics such as persistence, bioaccumulation, biomagnification, toxicity and long-range transport far from their source of origin through air, water, and soil.

1.2 The Stockholm Convention on Persistent Organic Pollutants (POPs)

With the objective of protecting human health and the environment from POPs, the Stockholm Convention on POPs was adopted by all of the United Nations (UN) on 23 May 2001, and came into force on 17 May 2004. Twenty eight (28) chemicals have been listed in the convention as POPs (Table 1). The chemicals are mostly pesticides, industrial chemicals, flame retardants but also unintentionally produced by-products. The convention has listed the chemicals under three Annexes. Annex A chemicals are to be completely eliminated, Annex B heavily restricted and Annex C constitute unintentionally produced substances.

Having ratified the convention in 2007, Nepal prepared its first National Implementation Plan (NIP) for twelve POPs to meet the Convention requirements. Table 1 shows the 28 POPs listed under the Stockholm Convention on Persistent Organic Pollutants (POPs). The twelve shaded that are those addressed in Nepal's NIP 2007. Another additional 11 in new NIP 2017. Still 5 new POPs were not included even in new NIP 2017.

Table 1. POPs listed under the POPs Convention. The first 12 (shaded) were included in the NIP of 2007.

Chemicals	Annex*	Pesticides	Industrial Chemicals	By-Products
1. Aldrin	A	+		
2. Chlordane	A	+		
3. Dieldrin	A	+		
4. Endrin	A	+		

5. Heptachlor	A	+		
6. Mirex	A	+		
7. Toxaphene	A	+		
8. Hexachlorobenzene	A	+	+	+
9. PCBs	A & C		+	+
10. DDT	B	+		
11. Chlorinated dioxins	C			+
12. Chlorinated furans	C			+
13. Alpha hexachlorocyclohexane (Alpha HCH)	A	+		+
14. Beta hexachlorocyclohexane (Beta HCH)	A	+		+
15. Chlordecone	A	+		
16. Hexabromobiphenyl (HBB)	A		Flame Retardant	
17. Lindane	A	+		
18. Octabromodiphenyl ether (OctaBDE)	A		Flame Retardant	
19.Pentabromodiphenyl ether (Penta BDE)	A		Flame Retardant	
20. Pentachlorobenzene (PeCB)	A & C	+	+	+
21. Perfluorooctane sulfonate (PFOS)	B		+	
22. Endosulfan	A	+		
23. Hexabromocyclododecane (HBCD)	A		Flame retardant[1]	
24. Pentachlorophenol (PCP) and its salts and esters	A	+		
25. Poly Chlorinated Naphthalene)PCN)	A & C		+	+
26. Hexachlorobutadiene	A		+	
27. Short-chain chlorinated Parafins (SCCPs)	A		+	
28. Decabromodiphenyl ether (Deca BDE)	A		+	
*Annex A= Elimination, Annex B= Restricted Use and Annex C= Unintentional Production				

1.3 First National Implementation Plan (NIP)

[1] HBCD was included in the Convention in 2013. The amendment listing HBCD in Annex A to the Stockholm Convention entered into force for most parties on 26 November 2014, one year after notification,.

Nepal's first National Implementation Plant (NIP) in 2007 was based on an agreement between the Government of Nepal, the Ministry Of Science, Technology and Environment (MOSTE; then MOPE), and the United Nations Industrial Development Organization (UNIDO) on March 11, 2003. This agreement was to undertake a project entitled "Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on POPs in Nepal" with the major objective: to formulate and endorse its National Implementation Plan (NIP) on POPs. The updated NIP 2017 was done under Ministry of Population and Environment (which is now Minister of Forest and Environment (MOFE).
The goal of the NIP was to:

- Develop national system for the environmentally sound management of chemicals, including legislation and provision for implementation and enforcement.
- Develop a database of the POPs in Nepal regarding export, import, production, use and stockpiles.
- Assess the mechanism for eliminating the production and accidental release of POPs to the environment.
- Identify provision of a control system on the import of POPs and improvement of the knowledge and capability of human resources.
- Develop a proposal for adoption of alternative technologies and a disposal plan.

The action plans, which were prepared under the NIP had identified the urgent and high priority issues, cost and benefit options and strategies for information exchange and education.

1.4 Institutional, policy and regulatory framework to address POP issues

The Nepalese Parliament ratified the Stockholm Convention on POPs on October 13, 2006. The National Implementation Plan (NIP) to comply with the convention is prepared by the MOEST is in line with the Stockholm Convention in 2007.

Minister of Forest and Environment (MOFE) [the then Ministry of Science, Technology and Environment (MOSTE)] is the focal point and responsible ministry for the implementation of Stockholm Convention on POPs. The country does not have any specific legislation on POPs. However, POPs can be regulated under the existing Environment Protection Act 1997, Environment Protection Regulation 1997, Pesticide Act 1991 and Pesticide Regulation 1993 (amended in 2008), Solid Waste Management Act 2011 and Solid Waste Management Regulation 2013 etc.

2. Project Description

This report is prepared by the Centre for Public Health and Environmental Development (CEPHED) for the project "**POPs Country Situation Report"** supported by International POPs Elimination Network (IPEN) and the infrastructure cost was borne by CEPHED. The new NIP 2017 is just about the implementation, it is too early to evaluate its effective implementation status.

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The report has the following components:

- Reviews the NIP of 2007 only
- Lists POP management activities carried out since 2007
- Assesses the progress of the implementation
- Assesses compliance with convention key requirements and sufficiency of the identified actions to meet the Convention`s obligations
- Provides recommendations for future work and the next NIP

3. **Objectives**:

3.1 Overall Objective:

Evaluate the progress in Nepal towards management of Persistent Organic Pollutants (POPs) as identified in the first National Implementation Plan (NIP).

3.2 Specific Objective:

- Assess the progress made by Nepal in the specific activities identified in its first NIP 2007.

- Identifying challenges and barriers to NIPs implementation, engaging with policy makers about more effective measures for POPs elimination are the major objectives of this project.
- Review the second new NIP about the inclusion of all relevant issues relating to new POPs.
- Review the status of measures taken by the country to reduce and/or eliminate the release of POPs.
- Review the periodic reporting on the effectiveness of these measures.

4. Methodology

Two separate day long targeted stakeholder consultation workshops were organised. One on one meeting, interaction and field and/or organisational visits were made to gather detailed information on activities performed. The analysis and assessment was presented in a meeting at Department of Environment (DOE) in the presence of key national experts. The comments and suggestions made in these meetings were duly incorporated into the report. The other has been shared the finding of the analysis with greater stakeholder at Department of Pesticide Registration and Management, Plant Protection Directorate, Department of Agriculture.

CEPHED and its team assigned for this task worked closely with designated officials of the Department of Environment (DOE) and Department of Agriculture. Consultation was made with the Ministry of Forest and Environment (MOFE) and other relevant ministries, departments and agencies as needed.

A brief description of the activities at government and non-governmental and even private institutional level such as Federation of Grill and Steel Fabricators Nepal (FGSFN), Private Hospitals etc., since the adoption of the 2007 NIP, was made.

A Strength, Weakness, Opportunity and Threats (SWOT) analysis was made against each and every proposed action plan and task specified in the NIP to assess the reason for progress made and/or not made.

The information from the SWOT analysis, lists of actions, meetings, and workshops with expert opinions was compiled into a table to summarise the objectives, actions, remarks, and feedback (Annex1 table1). This and the timetable of actions from the NIP 2007 checked against compliance (Annex1 table 2) were used to assess the progress against planned actions in the NIP 2007.

From all the experiences and information gathered challenges and recommendations were made to take forward in producing the next updated NIP 2017.

Assessment of the key requirements to meet the conventions objectives in general article 15 reporting in particular will need to be made in certain time intervals as per the Convention provisions.

5. National Implementation Plan (NIP) Progress

5.1 Organisation and Management

The Ministry of Forest and Environment (MOFE) [the then Ministry of Science, Technology and Environment (MOSTE)], as the Focal Point for the Stockholm Convention, has made efforts to implement the NIP in the country. It was expected to be supported by a POPs Officer, who looks after the POPs Unit established under the Law and Convention Division within the Ministry, but the officer has not been appointed and the unit not yet created (based on the current MOSTE`s organogram, http://moste.gov.np/ministry/organogram and Focal points and desks).

An 18 member Steering Committee on Implementation of Stockholm Convention (SCISC) was formed and is expected to meet regularly, and as and when required. This steering committee is under the Chair of the Secretary of MOSTE and the Stockholm Convention Focal Point (Joint Secretary level) and National Project Coordinator (NPC) of Medium Size Project (MSP) as Member Secretary.

A Project Management Technical Committee (PMTC) was formed under the Chair of the NPC and the Pollution Section Chief as Member Secretary. This committee has met twice: first in April 2012 for a discussion on PCBs management guidelines and second in April 2012 as a policy round table meeting with PMTC members and other stakeholders for the PCBs guidelines finalization. However, the guidelines have not yet been finalized.

The Steering Committee on Implementation of Stockholm Convention (SCISC) was expected to execute different priorities and action plans by employing project managers for different action plans. The service of experts was taken as required but due to several reasons the plans were not implemented as per the scheduled timing. The completed Medium Size Project on environmentally sound PCB management has not been able to deliver the expected results as per the aimed target.

5.2 Action Plan and Timescales

A summary of the major activities under the given action plans to be undertaken for the disposal or reduction of emission or reduction in use of the POPs chemicals in Nepal has been tabulated and annexed with this report (please see Annex 1 table 1).

Annex 1 table 2 shows clearly that most of the actions in the NIP have not met their deadlines.

As it also clear from table 2 below that 6 out of 9 prioritized plans of action have not been implemented at all however, there is some partial implementation and progress made in other 3 priority areas. The task on environmentally sound destruction of obsolete pesticides is fully executed whereas decontamination of PCB contaminated oil has been only carried out partially at about 50 per cent and PCB contaminated waste and equipment is yet to be managed. The destruction of PCBs is, however, a huge challenge for all developing as well as developed countries.

5.3 Prioritized Plan of Action

While preparing the first NIP by a rigorous assessment of the inventory data and information, and wider stakeholder discussion during priority validation workshops, and later on endorsed by the Steering Committee Meeting, ten priority areas were identified for Nepal for management of POPs. Table 7 shows these ten priorities and their implementation status to date. It can be seen that only five of the ten are partially implemented.

Table 2. Prioritized Plan of Action in National Implementation Plan(NIP) and its implementation status

Priorities for the management of Persistent Organic Pollutants (POPs) in Nepal Activities	Final Priority	Implementation Status
Pesticides • Safe packaging , safe storage, and disposal of obsolete pesticide • Remediation and site stabilization	1	Partially
PCBs • Manage stockpiles of PCBs and appropriate measures for handling and disposal of articles in use. • Identification of stockpiles of PCB contaminated article in use and waste • Ban on sale of PCB contaminated transformer oil	2	Partially
POPs • Public awareness raising, information and education	2	Partially
PCDD/F • Complete ban on elemental chlorine bleach to start with pulp industries. • Integrated waste management policy, legislation with special reference to reduce, reuse, and recycle wastes. • Complete ban on open burning of kitchen and garden waste in municipality area aimed to put complete ban on open burning throughout the country.	3	Not done
Legislative framework/ Capacity building • Institutional strengthening, legislation/policy formulation on POPs	4	Partially

• Harmonization of sector legislation • Human resource development, research and development		
Environmental monitoring (pre and post disposal)	5	Not done
BAT/BEP • Alternative energy program for household energy need	6	Partially
Promotion of intermediate technological solution on hazardous waste disposal	7	Not done
Release reduction from industrial process/establishment with the utilization of CP/EE/EM technology	8	Not done
Establishment of electrical crematoria	9	Partially

6. Discussion of Actions

6.1 POPs Pesticides

Pesticides were first imported into Nepal around 1956 to control Malaria. The consumption of pesticides in Nepal (0.142 kg/ha) was still very low compared to other countries such as India (0.5 kg/ha) and Japan (12 kg/ha). From 2007 to 2009 the annual importation of pesticides was increasing, decreasing in the year 2010, and again increasing in the years 2011.

Table 3. Status of Pesticides import in Nepal

Trend of insecticides, fungicides and others in a.i. (Kg or L) in Nepal from 1997–2011/12

S,N	Items	1997	1998	1999	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
1	Insecticides	31818	28728	43465	62439	60324	60391	85610.9	43993.8	65113.6	46553.3	60282.4	105814.6	61615.8	96115.3	114717.7
2	Fungicides	17438	37679	54531	102773	75445	90570	55199.0	97036.0	47702.0	74368.5	237372.2	203392.0	129567.0	183893.0	166815.43
3	Herbicides	6123	9566	2679	14943	3259	6844	11239.0	6386.4	11030.0	5701.7	6574.1	11124.3	15683.1	46696.0	53476.66
4	Others	793	1883	7753	15909	7125	19786	24323.9	5259.4	4047.5	2104.2	40562.9	33204.0	2613.1	6693.2	9848.8936
5	Public health								1406.3	3377.3	2556.8	2703.0	2811.0	1600.0	2276.0	174
	Total	56173	77857	108428	196065	146152	177591	176372.8	154082.1	131270.4	131284.6	347494.6	356345.6	211079.3	335673.5	345032.7

Source: Pesticide Statistics Booklet 2069(2012), MoAg, DoAG, Pesticide Registration and Management Division, Lalitpur, P 22

The trends of import and use of pesticides in recent years indicate further accumulation of pesticides because all the imported pesticides are not used.

Only pesticides prescribed and registered under the Pesticide Act by the Pesticide Registration and Management Division and with compliance of an IEE and EIA provision of Environment Protection Act and Regulation 1997 are considered as legal. All other pesticides formulated and imported are illegal.

This importation and complying with the existing national legal provisions as well as banning of pesticides including POPs chemicals are also in line with the Article 3 of the POPs Convention about eliminating the production and use of the intentionally produced chemicals. Elimination means that a country must prohibit all production, use, import and export of the chemicals mentioned in Annex A. For certain chemicals the Convention may also give a time-limited exemption to allow a country more time to find alternative chemicals.

6.2 DDT (1,1,1-trichloro-2,2-bis(4-chlorophenyl)ethane)

DDT is no more in use in Nepal and its import, distribution, sale and use has been prohibited since 2001. There is no possibility of its import and use legally, but because of the open border with India, where DDT is still being produced and used, DDT may enter Nepal illegally. Since 1995 the use of DDT in the health sector has been replaced with other non POPs pesticides, mainly synthetic pyrethroids.

Nepal prepared a baseline inventory of "old" POPs during 2004-2005. Since then there has been no update of the inventory either of the "old" POPs or the "new" POPs added to the convention in 2009 and 2011. This is to be carried out in the context of the NIP update.
74.5 metric tonnes of pesticides, of which 45% or 33.7 tonnes, were sent to Germany for environmentally sound destruction and disposal in 2013. The project was carried out with the support of the German Cooperation Agency (GIZ) after the combined effort of the Government of Nepal, other stakeholders, and a directive from the Supreme Court of Nepal to Ministry of Science Technology and Environment (MOSTE) to manage safely all the obsolete pesticides including POPs.

The old pesticide warehouses are now in some cases occupied by people and armed forces who may be exposed to the pesticide contamination remaining in sites. The pesticides were removed but the sites are still contaminated. These issues need immediate attention and the locations need to be investigated.

6.3 Polychlorinated Biphenyls (PCBs)

Polychlorinated biphenyls (PCBs) are the biggest challenge among the 23 chemicals listed by the UN POPs Convention. Nepal does not produce PCBs and dielectric fluids, but they have been imported and used in electrical transformers (Table 4). The entry of PCBs into the country may have been enhanced by the grant assistance of donor countries for developing and installing hydropower stations, transmission and distribution lines.

Table 4. Importation of PCB still ongoing in Nepal

Product name: polychlorinated biphenyls (PCBs), Polychlorinated terphenyls (PCTs) or polybrominated biphenyls (PBBs) Product ID 1731 and Product Number. 38248200					
S.N.	Country	Unit	Quantity	Value (NRS)	Year
1	India	Kg	620	158,367	2010
1	India	Kg.	31,100	2,607,630	2012
2	China P. R.	Kg.	4	4,051	2013
http://www.efourcore.com.np/tepcdatabank/commoditywise.php?txtmode=search as of April 8, 2014.					

The NIP categorically states that Nepal Electricity Authority (NEA) and transformer manufacturing private companies in Nepal import and use dielectric fluids free of PCBs, but as the import data of the Customs Department, Government of Nepal, shows about 31724 kg were imported since 2009. In addition to these imports there has been contamination and cross contamination of the dielectric fluid and equipment PCBs in significant quantities. About 106,185.3 litres of PCB contaminated transformer oil was found during the preliminary inventory in the year 2004. This PCB contaminated transformer oil has been only been partially (40%) dechlorinated during ongoing Environmentally Sound Management (ESM) of the PCB project with UNIDO support.

PCBs are a potential danger in terms of occupational health. 10.8% of the NEA workshop employees and only 4% of the private workshops employees (7.7% of the total informants)

were aware of health effects of PCBs. 27% of NEA employees and 7% of private workshops employees (18.5% of the total) had health problems. 59% of NEA employees and 14.3% of private workshop employees (40% of the total) were aware of impacts of PCBs on the environment (NIP 2007, p 47).

Some of the health related problems were seen. Using safety gear and awareness programs would improve the worker's health and precautionary behaviour. From a sample of 64 transformer repair stations and workshops and 106,185 litres of oil, 90,623 litres of oil contained PCB greater than 50 ppm. Among the 105 Grill workers, 46.3% had eye related problems, 28.7% were having problems with skin irritation, and 1.8% of the workers had respiratory problems (CEPHED 2010).

There are about 10,000-12,000 welding workshops, scattered throughout the country, and each workshop on an average possesses two welding machines in partially closed or open conditions. Each machine is filled with 40 litres (average) of dielectric fluid. These industries buy used transformer oil (possibly contaminated with PCBs) at a cheaper rate to fill their machines. Considering the above number of workshops each using 80 litres (40 litres each in 2 machines), about 800,000 – 960,000 litres (500,000 – 600,000 kg) of transformer oil is filled in such machines. Reuse of old oil in welding machines is quite alarming. Among the three samples analysed, 2 showed PCBs at a level greater than 50 ppm. Since a high number of labourers are constantly exposed to such oil, a close collaboration with the NEA and its staff and the extensive awareness program for NEA staff and welding machine operators would be helpful to address this problem.

The Ministry Of Science, Technology, and Environment (MOSTE) is working towards environmentally sound management of PCB contaminated oil and waste with the support of United Nation Development Program, Global Environment Facility (UNDP, GEF), and Medium Size Project (MSP) through UNIDO. A technical expert group from Romania has been contracted to clean up all PCB contaminated oil and waste from 2011 to 2013. The latest available information suggests that only 48,000 l of the contaminated oil has been dechlorinated and the rest is still contaminated with PCBs as published in the online media report.

6.3.1 De-Chlorination of PCB Contaminated Transformer Oil and Equipment's

PCBs contaminated dielectric fluids and electrical equipment's mentioned in the initial NIP 2007 were de-chlorinated and decontaminated during the post-NIP MSP on "Environmentally sound management of POPs pesticides and PCBs in Nepal" during 2011 -2014. During this project, detail inventory of transformers was prepared focusing on power transformers under NEA (Nepal Electricity Authority) from all parts of the country (generating stations, grid stations, sub-stations and maintenance workshops) and distribution transformers from the Kathmandu Valley. Level of PCBs in the collected oil samples was quantified using an UN recommended Dexsil Analyzer LX 2000 in a temporarily established laboratory within the NEA. The decontamination of all available PCB oils (54 mton) and equipment (155 mtons) was completed by March 2014. To confirm that the decontamination was successful, SetCar the contracted company to carry out de-chlorination and decontamination sent 99 oil samples to an independent accredited laboratory in Romania for analysis and found that the PCBs level was at < 50 ppm level in these samples.

During the implementation of Medium size project (MSP) for the management of PCB, a total of 532 mtons (385 mtons of transformer and 147 mtons of oil) of PCB contaminated equipment and oil was found, out of which only a total of 209 mtons of PCB equipment (155 mtons) and oil (54 tons) was treated by the mobile unit. It was due to the fact that the other

PCB contaminated transformers and oil were not made available by the NEA for decontamination as they were not easily accessible or could not be removed from the grid or had already gone for repairing and maintenance or old oil was changed by NEA.

6.4 Polychlorinated dibenzo-p-dioxins and dibenzo furans (PCDD/PCDF)

The preliminary inventory on Dioxins and Furans emissions (335.972 gTEQ) was made in 2006 according to the methods recommended in the UNEP Standardized Toolkit for Identification and Quantification of Dioxin and Furan Releases. The major source of PCDDs and PCDFs releases is uncontrolled combustion. There is no specific legislation in place for controlling the releases of PCDD/F from commercial as well as non-commercial sectors. With the increase of hospital facilities in the country, the use of open burning or incinerators for managing medical waste has been increased adding to the release of Dioxins and Furans. Some hospitals, however, have been developing environmentally sound health care waste management with the adoption of non-incineration technology. To have autoclave treatment adopted at a national scale would require legislative and institutional framework. The focal ministry MOSTE has already enacted the stack height and emission standard of (Annex 2) incinerators including most importantly UPOPs Dioxin and Furan as well as Mercury. This is unlikely to improve the situation since there is no monitoring mechanism and infrastructure to measure the dioxin and furan emissions in the country. Having a standard for incineration in place may legalise and promote the use of incineration but without monitoring and enforcement release of dioxins and furans may increase.

The unintended release of PCDD/F from different sources is planned to be reduced through the implementation of the NIP action plan. The banning of open burning of agricultural residues is a step toward the reduction of the release of PCDD/F's and this sector contributes the most PCDD/F. If the Ministry of Agriculture's (MOA) decision to ban open burning of agricultural residues dated April 6, 2014 will be effectively implemented, it will substantially reduce the release of PCDD/F.

Other sectors did not have substantial progress. For example, household energy switching to clean energy e.g. renewable, or CNG, LPG gases from biomass based energy for controlling emission of PCDD/Fs contributes about 45 gTEQ/year and not much has changed. Its promotion is not up to the need and requirement of the nation.

Table 5. Energy consumption shift from 2006/07 to 2012/13

Energy Consumption by Fuel Types	2006/2007	2012/2013	% Increment
Traditional (000 Tons) (Fuel wood, Agri Residues, Animal dung)	7854.59	8017.47	2.08
Commercial Energy (000 Tons) (Coal, Electricity, LPG, Kerosene, Gasoline, High Speed Diesel, Light Diesel oil, Fuel oil, Air turbine fuel, other petroleum)	1031.35	1854.67	79.83
Renewable (biogas, solar, micro hydro)	8940.26	10038.05	12.28
Sources: Environment Statistics of Nepal, CBS 2014,			

http://cbs.gov.np/wp-content/uploads/2014/07/Environment Statistics of Nepal 2013.pdf

6.5 Legislative framework/ Capacity building

Currently there is no intentional production and import of the initial 12 POPs chemicals in industries, power distribution, agriculture, or public health in the country though there are some unintentional or illegal sources. There is no plan of using them in the future either. There are some regulatory frameworks such as Pesticide Act 1991 and Solid Waste Management Act 2011 for the management of pesticides and solid wastes respectively in Nepal, but none of the legislation sets levels for contamination of persistent organic pollutants (POPs) in waste or products. Warehouses that have stored obsolete pesticides and their immediate vicinities, temporary landfill sites, and transformer workshops may have been contaminated by PCDD/F and PCBs. Until now, in Nepal, there are no remediation measures adopted for sites contaminated by POPs.

The Pesticides Regulations 1994 have several provisions for registering, licensing and monitoring of pesticides. The Environmental Protection Act (EPA) 1997 and Environmental Protection Regulations (EPR) 1997 have several provisions in giving clearance through IEE and EIA prior to importing and producing of any new chemicals. EPA 1997 and EPR 1997 have made strong provisions for hazardous substance management demanding a full scale environmental assessment for the recycling and recovering of waste containing hazardous substances and for projects dealing with production, import, sale of pesticides. The legal and institutional systems to regulate the import, production and use of hazardous and toxic chemicals are not as effective as desired due to several technical and financial short comings.

These pesticide regulations and Acts are around 20 years old and currently under amendment with more provisions and tighter regulatory provisions. They propose imposing a fine of up to Rs 50,000 (the existing fine is Rs 1,000 to Rs 5,000) and imprisonment of up to six months upon suppliers and agro-vets who try to sell unwarranted quantities of pesticides to farmers. The official at the Pesticide Registration and Management Division of the Department of Agriculture, Ministry of Agriculture, Government of Nepal, explained that more than 60 per cent of pesticide users are currently misusing the chemicals because of profit-motivated agro vets who try to sell as much of the product as possible, and at the same time, farmers, seeking quick results, are also misusing the chemicals in their farms. The new amendments will also give the authority to pesticide inspectors to fine up to Rs 1,000 on retailers and farmers found selling or using unjustifiable quantity of pesticide. This new act and regulation will also cover various areas like providing training to agro-vets, setting their minimum academic qualification and market monitoring.

The new amended laws are also expected to address emerging challenges that are not covered by the existing act and regulations. Regarding POPs management there is no specific regulation in Nepal. No improvements or amendments have been made in the existing Pesticide Act and EPA related with POPs issues.

The Solid Waste Management Act 2011, and Solid Waste Management Regulation 2013, Right to Information Act 2007 and Right to Information Regulation 2009 etc. are progressive acts that need to be effectively used in the area of POPs.

6.7 Information and awareness

Nepal does not have any comprehensive public information policy and practices directly related to POPs issues. The general public and even the authorities of stakeholder organizations were found to be quite unaware of the adverse effects of POPs pesticides, PCBs and PCDD/F.

Nepal has the Right to Information Act 2007 and the Right to Information Regulation Act 2009, which give full provision for the right to information as also ensured as one of the fundamental rights enshrined into the Interim Constitution of Nepal. These are the acts with provision to collect, update and proactively make available all the information of public importance along with the provision of maintaining the confidentiality set forth about certain categories of information.
The Acts aim:

- To make the functions of the state open and transparent in accordance with the democratic system and to make the state responsible and accountable to the citizens;
- To make the access to information of public importance held in public bodies simple and easy for citizens;
- To protect sensitive information that could adversely impact the interest of the nation and citizens,
- To have legal provisions to protect the rights of the citizens to be well-informed and to bring it into practice.
- For a dedicated Information Officer and dedicated Information Desk in all public entities.

This could definitely improve the situation for the POPs issues if it was effectively developed at MOSTE, but has not happened yet.

Nepal has agreed up on the Rio Declaration 1992 on Environment and Development and is therefore obliged to implement Principle 10 which states that "Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided".

6.8 Research and Analysis

Regular and systematic monitoring of POPs is lacking, except for pesticide monitoring in food items. The findings of some studies give clear indication of the presence of POPs in the Nepalese environment quite above the recommended and permitted levels as shown in NAARC, NEFEJ and PRO PUBLIC studies also included in the NIP. The situation has remained the same even after 7 years of NIP in the implementation stage as only six out of nine prioritised plan of actions has been only partially implemented.

The analytical laboratories in Nepal have little experience in analyzing organo-chlorine residues in water, soil, sediment and vegetable samples both in private and public laboratories. There are increasing numbers of laboratories with more sophisticated lab equipment such as Gas Chromatography (GC), Mass Spectroscopy (MS), Atomic Absorption Spectroscopy (AAS), Xray Fluorescent (XR F) with laboratories at public and private laboratories such as NBSM, NESS, Water Energy, PALTC etc. in the country. PCB testing

laboratory set up were aimed under MOSTE implemented ESM of PCB and waste management. However, no laboratory is equipped to analyze PCDD/F samples in the country.

Nepal has no declaration and reporting systems about the release of POPs. The POPs inventory gives preliminary information on the potential sources of POP chemicals, the amount of stockpiles and release into the environment, as well as the rough estimation of impacted populations and contaminated areas in Nepal. The earlier inventory on PCB, pesticides, and PCDD/F was only included in the inventory of the first twelve POPs. Since then there is neither any initiative to update the first inventory or to inventory the additional ten POPs new to the list and update the NIP.

About one fourth of all NGOs registered in Nepal have at least Environment Conservation as one of their main objectives. Very few of such organizations are undertaking research or awareness programs on POPs and other chemicals.

A SWOT analysis carried out during the preparation of first NIP showed that Nepal has good professional and organization basis to fulfil the Convention obligations, but the laboratory (technical) basis is not adequate. Though there are an increased number of laboratory facilities in the country for analysis of POPs and pesticide residues in environmental mediums, they are mainly in the private sector, need accreditation, and can be costly.

Barriers at policy and institutional levels as well as cultural and financial barriers have clearly hindered the effective implementation of the NIP as only partial implementation of two out of 10 prioritised plans of actions got financed and partially completed.

7. POPs not included in the First NIP

The Stockholm Convention listed new POPs pesticides (in the convention's Annex A) in 2009 and 2011. These include Endosulfan and Lindane. These are not included in the NIP 2007 and so no actions were foreseen in relation to these pesticides.

Endosulfan import and use was banned in 2012 with a grace period of about 2 years to allow use of all the previously imported stocks. In early 2014 Endosulfan was widely available in the pesticide market and it is possible that there will be stockpiles left even after the end of the grace period in November 2014. As the use has been allowed, Nepal would need to file an exemption to the Convention Secretariat as per the Convention text.

In COP4 2009, Nepal filled a 5-year specific exemption for Lindane for its pharmaceutical uses in order to harmonise with the related laws. As this period is also over, Lindane based pharmaceutical products have not yet been banned.

The first NIP did not include any new POPs just the first generation 12 chemicals. Thus there is a need for complete assessment on these new POPs to be included into the new NIP. These are as follows:

Table. 6. List of New POPs listed into the Convention	
1.Alpha hexachlorocyclohexane (Alpha HCH)	9. Perfluorooctane sulfonate (PFOS)
2. Beta hexachlorocyclohexane (Beta HCH)	10. Endosulfan

3.Chlordecone	11. Hexabromocyclododecane (HBCD)
4. Hexabromobiphenyl (HBB)	12 Pentachlorophenol (PCP) and its salts and esters
5 Lindane	13. Poly Chlorinated Naphthalene)PCN)
6.Octabromodiphenyl ether (Octa BDE)	14. Hexachlorobutadiene
7.Pentabromodiphenyl ether (Penta BDE)	15. Short-chain chlorinated Parafins (SCCPs)
8. Pentachlorobenzene (PeCB)	16. Decabromodiphenyl ether (Deca BDE)

8. Reporting Compliances

Article 15 of the Convention required each party make the report to the Conference of the Parties on the measures it has taken to implement the provisions of this Convention and on the effectiveness of such measures in meeting the objectives of the Convention at periodic intervals and in a format decided upon. As per the schedule, Government of Nepal, Ministry of Science, Technology and Environment (MOSTE) as focal ministry to the Convention need to report the progress and compliance with the Convention by August 2014. No reporting has been made yet.

9. Challenges of NIP Implementation

9.1 Time

A timetable for the action plan of the NIP was prepared considering the present facilities and future developments of the required infrastructures and capacities. This needs improvement as the programs have not been realised as per the schedule.

9.2 Finance

Issue specific action plans with priority activities were developed to indicate the areas where key investments are required. Further areas in which support from donors or from bilateral cooperation will be required should be included in the updated versions of the NIP.

For the regular updating of the inventory of POPs-containing articles or POPs-contaminated wastes or POPs emitting sources substantial technical and financial support will be required. Nepal can manage this part of the task with the available professionals, but the financial resources are still inadequate.

A total of USD 41,856,260 was estimated to be required for a period 2007 to 2028 to carry out different activities while implementing the NIP. Contributions from the state budget, bilateral or multilateral support and donor assistance and from industry sectors were to be used to meet these huge expenses. About USD 2,738,260 was proposed for coordination activities during the implementation of the NIP and is included in this total amount. The budget needs to be adjusted over time with respect to the accumulated activities not having been completed yet and currency inflation rate. The new budget need to be allocated for management of new POPs added and that will be going to the part of new NIPs.

9.3 Infrastructure

One of the main obstacles in immediate disposal or reduction in release/emission of POPs in Nepal is the inadequate infrastructure and capacity presently available in the country.

9.4 Skills

Countrywide and massive awareness raising campaign in different forms and through different fronts is an urgent task demanding additional professional support.

Issues being faced by the regulatory authorities in implementing the NIP.

10. Conclusion

Most of the objectives in the National Implementation Plan (NIP) 2007 have not been met fully at this stage and many actions are far behind their timescales. From the nine priorities only six have been partially implemented.

However, of the two major prioritised actions Disposal of Obsolete Pesticides has been successfully done, although the reclamation and stabilization of contaminated sites remains to be done. De-chlorination of contaminated transformer oils has been done partially (about 40 % only). Still it makes the whole planned action only partially completed as there were other major components associated with these two major prioritized plan of action that need to be implemented to be fully complying with the associated prioritised plan of actions.

Most of the other prioritised plans of actions were partially implemented. Some of the prioritized plans of action have not been implemented at all.

11. Recommendations

The following recommendations regarding the NIP can be made:

1. Accelerate the pace of the program development and implementations of the NIP.
2. Some of the small initiatives would have made better achievements for the NIP. For example, notice for banning of open burning of kitchen waste and garden waste, publicly releasing of PCB oil sample test results, asking welding workshops to stop using old oil and to return it, mass awareness on POPs etc. are just few smaller more achievable aims identified in the NIP.
3. Coordination and cooperation among all stakeholders especially among all concerned ministries and departments is sparse and meetings need to be held. Frequent steering committee meetings need to be planned and organized for timely action.
4. Research and information generation about POPs and their impacts, and alternative chemicals and technologies needs to be promoted.
5. Raise awareness about POPs, Pesticides, PCBs etc. and set a mechanism to access information. There is a need for the development of communication and education materials on POPs.

6. The Department of Environment needs to be strengthened in the area of effective implementation and monitoring of POPs and related activities and reporting.
7. The proposed institutional units at MOSTE specifically for POPs issues need to be developed.
8. Develop and implement institutional capacity building (infrastructure, laboratory, toolkits, hazardous waste management facilities, human resources), legal frameworks (hazardous waste management policy, harmonising related acts, localising convention into the national laws, strategies for inventory, monitoring, disposal, guideline for collection, storage, use and transport, standards etc.) for government, non-government and business communities on POPs and waste.
9. Lindane and Endosulfan are still being used, and potentially are going to be still in use or there will be remaining stock after the end of the exemption or grace period and hence a formal exemption needs to be launched with the POPs Secretariat and an urgent move made to eradicate the chemicals.
10. Robust participation in Conference of Party (COP) of the POPs Convention through developing the culture of organising a stakeholder preparatory meeting before taking part in any diplomatic meeting, conference, COP, MOP etc.
11. Full compliance of existing national and international legal frameworks is needed. For example: PCB's have been banned but found to be still imported, incinerators as the identified source of PCDD/F need to be shut down instead of formulating standards.
12. List highly hazardous pesticides and ban fully all the Annex A POPs. Ban PCB import immediately.
13. Avoid further accumulation of pesticides by balancing demand and supply to become date expired and then obsolete.
14. Contamination site assessments, reclamation and stabilization are required.
15. Some of the old obsolete pesticides warehouses have been used and occupied for residential purposes. These need immediate evacuation and to be sealed. e.g. The Illam warehouse.
16. Increased border area surveillance to prevent the illegal transboundary movement and trade of POPs as well as waste.
17. Mobilize internal, national resources and proactively look for raising international cooperation for required technical and financial resources for dealing with POPs, hazardous waste, and date expired pesticides.
18. Effectively implement environment policies and programs as well as mainstreaming the environment conservation issues in the development process.
19. Updating NIP- Addition of new POPs

ANNEXES

Annex 1. Table I. SWOT ANALYSIS of NIP
Annex1. Table II. Activities wise Compliance Status of NIP

ANALYSIS for Compliance of NIP implementation

Annex 1. Table I. SWOT ANALYSIS

S. No.	Action Plan	Objectives	Activities	Remarks From Expert	Feed Back Internal (CEPHED Group)	Sufficients [S]	Not Sufficients [NS]
	Institutional and regulatory strengthening measures	Strengthened national institutions with interagency coordination	Establishment of Interagency Coordination Mechanism	SCISC formed	Institutional Strengthening	S	
			Establishment of the Enforcement Agency for Environmental Requirements	DOE established but not well equipped	Laboratory setting More Environment Inspectors (EI) should be recruited		
		Strengthened and updated or amended regulations in line with Stockholm Convention	Coordination and Cooperation between Basel, Rotterdam, Stockholm Conventions in Nepal	SAICM participation and adoption of resolutions	Localisation of SAICM process		
			Implementation of Action Plan on Stockholm Convention	Only Partially implemented 2 out of 10 Planned Actions by government and 1 on Awareness Raising by NGOs	All plan of actions should be implemented		
					Speediest the process of Pesticide Act & Regulation amendment		
			Cooperation and Coordination of Activities				
		Open burning system and use of POPs generating chemicals banned	Concerning Promotion of BAT and BEP	**No BAT and BEP** promotion.	CEPHED is being implementing BAT and BEP in environmentally friendly health care waste management sector and PCBs free grill workshop.		
			Ban on the use of POPs containing materials	Not ban of chemicals			
			Ban on the use of chemicals potential for generating POPs	Endosulfan banned			
			Ban on open burning of kitchen and garden waste in urban areas	Tyre and Straw banned of open burning			
		Expanded scope of alternate energy programs	Formulation/Amendment of Integrated Waste Management Policy and Amendment of SWMRM Act	SWMRMA replaced by SWMA 2011	Technical training		
					Effective implementation of SWMRMC Act, EPA, EPR, RTI and RTIR		
			Formulation of Hazardous Chemicals Management Rules	Formulation of Hazardous Waste Regulation/Policy			

				Haz Chem Mgmt rule has not been formed	Overall Chemical Safety policy formulation.		
			Harmonization of sector legislation	Not much harmonisation of legislation	More law such as LSGA, Industrial Entp Act, Labour Act, Occupational Act etc. need to amended and harmonised in a way that it will address the issues of additional New POPs as well.		
			Establishing Information Education and Communication (IEC) System	No IEC system established	Dedicated Information Unit and Information Officers		
			Further strengthening and expanding the scope of alternate energy program for household & industrial use	Alternative energy program promotion at household use but not at industrial use.	• All the expected institutional arrangement in NIP should be estd. • Alternative energy at industrial scale**.**		
2	Measures to reduce or eliminate releases from intentional production and use	Harmonizing and amendment of relevant laws	Harmonizing of sectoral laws and amendment with respect to time requirement and in line with POPs convention Article 3 (point 3 & 4) and Annex D	The current amendments in the Pesticide Act did not consider these POPs issues very much in line with new POPs.			NS
				Other new POPs especially FRs need to be linked with MO Industry, Ministry of Home , MOHP			
		Establishing and strengthening of relevant institution (MOEST and MOAC)	Establishing and strengthening institutional aspect of both line ministries (MOAg and MOSTE) for permanent set up of monitoring mechanism.	Exemption period of Lindane asked has expired , no any initiatives so far made	All other relevant line ministries should be capacitated such as MOE, MOI, MOICS, NAST, NARC, NBSM, DOE, PRMD , DOC, MOHP		
				Pesticide residue testing facilities has been established.	Pesticide residue testing facilities need to be expanded in all boarder area and major cities.		
3	**Production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, part I chemicals)**	Complete inventory of POPs pesticides prepared	Preparation and adoption of a strategy for complete inventory and collection of obsolete pesticides	The complete inventory of Obsolete pesticide were never made (as some were still lying with the pesticide dealers and even in the Agriculture center (e.g. Lumle Ag. Center).	Complete inventory is required and Information system need to establish to track down import, use, left over		NS

			Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee POPs wastes	POPs waste control mechanism, inspection and cooperation did not realised	• Institutional and legal mechanism of regular inspection of POPs waste		
		Obsolete pesticides safely packaged, stored, and disposed and contaminated sites remediated and stabilized	Safe packaging and labelling and safe interim storage of obsolete pesticides until final disposal	All obsolete pesticide were not collected			
			Transport of obsolete pesticides and contaminated soil and containers to disposal site for disposal in line with Basel and Stockholm Conventions	Obsolete pesticide were sent but not the contaminated soil	Contaminated soil should be disposed		
			Site stabilization and remediation	Site are not studied and stabilised yet.	• Site need to be studied and stabilized soon • Immediate closing the sites for any other uses		
		Further accumulation of pesticides prevented	Establishment of a system for control of illegal import, application and balance between import and demand of pesticides	No control over illegal import and no balance between import and demand have been set as we have found further accumulation in several locations.	• Balance between demand and supply should be made • Strict mechanism of import including illegal import stopping		
4	**Production, import and export, use, identification, labelling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, part II chemicals)**	Stockpiles of PCBs & PCBs contaminated articles in use and waste identified	Updating of transformer database along with labelling and tagging of decommissioned and in use transformers	Transformer data base has been updated ??	Updated inventory report should be made public		NS
			Collection of information on retrofilling				
		Stockpiles of PCBs and PCBs contaminated articles managed and appropriate measures taken for their handling and disposal	Construction of warehouses to store PCB wastes (articles and oil)	No construction of PCB warehouses	PCB warehouses need to be constructed soon		
			Replacement of PCBs contaminated oil and articles	14 out of 15 Power Transformer, 87 out of 167 distribution transformer were only cleaned	All contaminated oil and material need to be disposed through ESM		
			Disposal of PCB wastes				
			Ask welding workshops to stop using old oil and to return	No any notice to Welding Workshop to stop and return the PCB contaminated oil	Immediate notice to the Grill Workers to stop using and returned the oil to MOSTE or allocated location		
		Developed system for monitoring of contaminated	Formulation of Guidelines for collection, storage, further use and transportation	Guideline drafted but not finalised	Finalise and adopt the guideline		

		areas and point sources	On-site testing by portable Test-kit	Onsite testing has been made	Complete onsite testing has to be done and report has to be made public		
			Control of illegal import and use of PCBs contaminated oil	Control of legal and illegal import and use of PCB has not been made as TEPC web still shown legal import of PCB/PTB/PBB	Immediate legal control measures have to be taken to stop legal and illegal import and use of PCB.		
5	**Production, import and export, use, stockpiles and wastes of DDT (Annex B chemicals) if used in the country**		Nepal has already banned	Illegal import of DDT has to be rectified and ceased	Effective monitoring	S	
6	**Register for specific exemptions and the continuing need for exemptions (article 4)**		During first period of NIP reporting , Nepal has not registered any exemption		In COP4 2009, Nepal filled a specific exemption for Lindale for its pharmaceutical uses in order to harmonise the related laws.		NS
					As endosulfan has been banned for registration and left over need to be spent by this year. A specific exemption need to be filled if there is left over Endosulfan remains in the country. (this is for sure)		
7	**Measures to reduce releases from unintentional production (article 5)**	Complete and updated inventory of all Annex C POPs;	Updating/revising inventory of Annex C POPs in Nepal	No inventory update taking place Additional Chemicals has been listed into the Annex C	Update Annex C Inventory including new POPs		NS
			Household energy switch for controlling emission of PCDD/Fs	Not sufficient household switching	Effective scale up household energy switching		
		Increased awareness and skills among concerned people;	Capacity building activities	Not sufficient Capacity building (govt)	More capacity building on Annex C POPs		

		Established system / infrastructure for control of releases from unintentional production;	Controlling open burning of agriculture residues and forest fires	Control measures of open burning of agriculture residues has been imposed by MoAg but is not effective	Stricter open burning control measures and effective implementation		
			Establishment of Electrical Crematoria	Electrical crematoria has not been came into operation	Functional electrical crematoria set up		
		Established system for long-term permanent monitoring and reporting on the releases from unintentional production.	Establishment of hazardous waste management facility	No establishment of hazardous waste management facilities and system for long term permanent monitoring and reporting on Annex C	Establishment of sufficient numbers of haz. waste management facilities		
			Regulatory framework for release limit values				
			Economic instruments for release reduction	No effective economic instruments for release reduction strategy	Attractive economic instruments for release reduction (Tax. Vat , exemption and Subsidies in green technology)		
			Establishing system for long-term permanent monitoring and reporting on Annex C POPs	Standard fixing for Incinerators has been initiated but it may not be appropriate for Nepal with no monitoring capacity.	• Setting of monitoring facilities of Annex C POPs along with standard fixation • Long-term monitoring and reporting mechanism		
8	**Measures to reduce releases from stockpiles and wastes (article 6)**	Prepared assessment of current situation with releases from stockpiles and wastes;	Identify and Mapping of Stockpiles, Products, and articles consisting of or containing chemicals listed either in Annex A, B and C.	No mapping of stockpiles, products and articles containing all POPs has been done. .	Mapping of stockpiles, products and articles containing all POPs should include new POPs as well.		NS
			Preparation of an Inventory of Sewage Treatment Plants Number of sewage treatment plants that are in the inventory	No inventory of functional and non functional sewage treatment plant has made.	Inventory with functional and non function status of sewage treatment plant		
			Determination of the extent of the contaminated areas and determination of the level of contamination	Govt. so far did not assess any contamination level. CEPHED has collected the soil samples from contaminated sites	Verification and more extensive study has to be made for contamination site		

				and under the process of testing as well as mapping of contaminated sites just from obsolete pesticides storage sites. Other contaminated sites also exist in country			
		Established procedures for elimination of releases from stockpiles and wastes	Establishment of procedures for elimination of releases from stockpiles and wastes	No exercise has been made to elimination of release from stockpiles and waste.	• Site reclamation plan has to be done • Mechanism has to be set out for elimination of stockpiles and waste		
			Preparation of economic analyses for the sustainability of the process of recycling-burning dumping technology	No economic analysis of recycling, burning and dumping technology has yet been made	Economic comparative studies has to be made and select the least economical options		
9	**Identification of stockpiles, articles in use and wastes**	Prepared inventories of stockpiles, articles in use and wastes	Preparation and adoption of a strategy for inventory completion	No attempt has been made to do the compete inventory	Inventory with inclusion of New POPs is necessary		NS
			Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee stockpiles, articles in use and wastes	No any known inspection on steps has been made on stockpiles and article on use but happened in case of Medical Waste	Formal inspection bodies need to be formed and should inspect all possible stockpiles, article in use and all kinds of waste as well.		
			Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area	No major landing of business sector in waste management. It is still in the hand of informal sectors	• EPR (Extended Producer Responsibility and PRTR (Pollution Release and Transfer Registry) system has to be developed and thus binding for business communities for these issues. • SMAR (Self Monitoring and Reporting) system need to be developed and make it mandatory.		

10	**Manage stockpiles and appropriate measures for handling and disposal of articles in use**	Prepared technical standards for handling and disposal of articles in use;	Preparation and adoption of a strategy for handling and disposal of articles in use.	No strategy has been adopted	Strategy with inclusion of New POPS has to be made		NS
		Developed a system for monitoring of handling and disposal of articles in use	Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area	No scheme to attract and bound business community	EPR and PRTR need to be enacted		
			Preparation and establishment of control mechanisms and cooperation of inspection bodies concerning handling and disposal of articles in use	No inspection body in article on use for pesticide stockpiles, article in use (e.g. Welding Machine, Transformer etc) but for the medical waste management it exist.	• Formal inspection bodies need to be formed and should inspect all possible stockpiles, article in use and all kinds of waste as well. • Sector specific issues need to be identified by respective sector and there should be some coordinating mechanism to consolidate the report.		
11	**Identification of contaminated sites (Annex A, B and C Chemicals) and remediation in an environmentally sound manner**	Prepared environmental assessment of contaminated areas;	Preparation of an implementation strategy for these activities	No any preparation has been made	We need to adopt the standard methodology instead of developing one		NS
			well established scientific method will be adopted				
		Prepared strategy for contaminated areas recovery;	Prioritization of contaminated areas for their recovery, taking into account mainly the impact of contamination on human health or its environmental risk	Assessment of contaminated sites not yet done. Some imitative has been made by CEPHED	We should adopt the internationally accepted work procedure and suitable technology		
			Preparation of technological and technical work procedures	Prioritisation has to be made for site stabilisation work procedure has been made	Strategies development for preventing further stockpiling and getting contamination.		
		Realized decontamination activities	Carrying out the decontamination activities	Partially decontamination has been made for the PCB contaminated transformer as well as contaminated oil	Environmentally sound decontamination and recovery process has to be employed.		
12	**Facilitating or undertaking information exchange and stakeholder involvement**	Established National Focal and list of stakeholders prepared	Preparation of institutional and technical set up to establish National Focal Point	No initiative has been made for institutional and technical set up but enacting of Right to Information Act and Right to Information Regulation with the	Immediate fixing of Information Officer and Information Desk	S	

				provision of dedicated Information Desk and Information Officer has been there			
			Preparation of stakeholders list	Listing of stakeholder is continuous process	Updating of stakeholder listing and engaging them into the process is necessary		
		Established system of information exchange between responsible the National Focal Point and the responsible	Development of a system for collection and exchange of information	Only few initiatives developed for collection and information exchange	• Formats for information exchange on POPs need to be developed and adopted. • Ensuring the collection and information exchange either from own primary research or from other stakeholders. Mechanism has been set forth for the same		
13	• Public awareness, information and education (article 10)	Educated and trained government officials for implementation of the Convention	Preparation and realization of training for government officials of different levels for implementation of the Stockholm Convention	Different govt officials have undergone various training PCB, BAT and BEP , PCB, New POPs, NIP updates, inventory and Monitoring training	Very poor information exchange about POPs has been seen in the government sector.		NS
		Educated and trained business sector representatives for implementation of the Convention	Preparation and realization of training for business sector representatives	Education for Business sectors specifically pesticides dealers, retailers and applicators is ongoing from PRMD	Awareness and Capacity building is equally needed for business communities, workers, and other stakeholder on POPs. Even all the officials from concerned unit were found not aware of activities and results of testing on POPs undergoing in the ministry.	•	•
		National education system incorporated POPs information and disseminated through education (curricula)	Educational activities focusing on POPs , their sources, applications, uses and hazards and management of POPs wastes	Some of the higher education does contain courses on Toxicology with the pesticides, POPs related issues, POPs Convention. Not sufficient	Massive awareness and capacity building at Government level is required.	•	•

		Educated general public for principles and objectives of Stockholm Convention	Preparation and implementation of countrywide information and educational campaign concerning hazards of POPs	Very few and limited information and educational campaign on POPs for general public from Govt. has been made. CEPHED has countrywide program in each development region on POPs, research, publication and dissemination.	• Mass awareness on POPs for general public. • Setting of functional information unit with dedicated information Officer on POPs need to be developed.	•	•
14	**Effectiveness evaluation (article 16)**			This is the first attempt of doing some evaluation	Based on the available data and ongoing project outcomes, it can be inferred that the NIP has not been effectively implemented as none of the prioritised plan of action has been fully realised but partially implemented.		NS
	Reporting	Information on POPs emission and release levels and on the progress in the implementation reported to the Convention to meet its obligations	Preparation of national reports for the Conference of the Parties to the Convention;	Reporting made on Nov 2010 but not comprehensive one.	Second reporting has to be prepared		NS
			Inventory reports on POPs emission and release	No any inventory report on POPs emission since the first inventory	Emission inventory need to be developed		
			Preparation of reports on progress in the elimination of PCBs;		PCBs elimination progress report is undergoing		
			Development of data collection system concerning different activities and POPs emissions from different sources	No data collection system has been developed	Data collection system need to developed		
16	**Research, development and monitoring (article 11)**	Established network for cooperation, data and information exchange of scientific institutions involved in POPs research activities in	Preparation of an inventory of institutions involved in POPs research activities	Inventory of Institutions involved in POPs research activities is ongoing things but not initiated.	More and more research has to be financed and conducted by government and other institutions.		NS

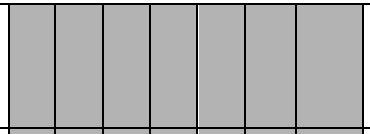
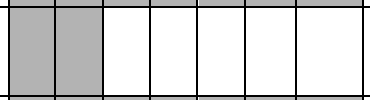
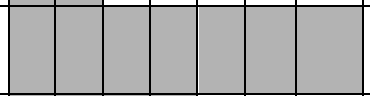
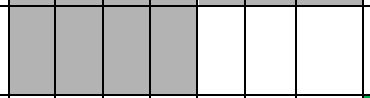
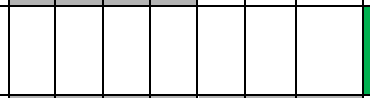
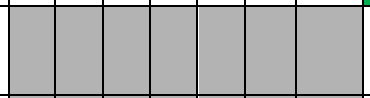
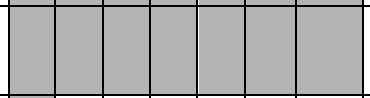
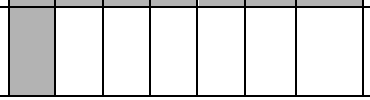
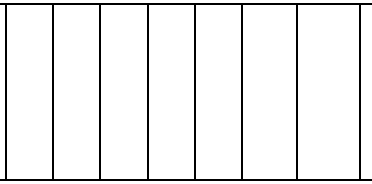
		home or in the region;	Establishment of a network for cooperation, data and information exchange among these institutions		Network expansion for data and information exchange		
		Established and adopted an internationally accepted system of standardization of methods for residue analysis in biotic and biotic matrices;	Establishment of new and strengthening of existing labs at national level	No lab was strengthened but PCB laboratory were suppose to be created.			
			Establishment of internationally accepted system	No monitoring and hence no adoption of internationally accepted system of standardization			
		Developed system of quality assurance and quality control in Nepalese laboratories	Development of scheme for adoption of the system by research/ scientific institutions Development of standards for quality assurance and control Development of scheme for adoption of the standards by scientific institutions	No standard quality assurance and scheme of adoption of the standard scientific institutions	Development of standard for quality assurance is necessary to avoid the issues has happened in procurement of the substandard transformer and many officials has been charged in associated corruption allegation.		

Annex1. Table II. Activities wise Compliance Status of NIP

Year	2007	2008	2009	2010	2012	2014	2016	2017	Implementation Status	2016	2018	2020	2022	2024	2026	2028	2030	Remarks and References
Activity																		Implemented as planned; Partially implemented; Not implemented; Original Time planned
3.3.1: Institutional and regulatory strengthening measures																		
Establishment of the Enforcement Agency for Environmental Requirements																		DOE has been established , needs some POPs programs
Establishment of Interagency Coordination Mechanism																		Ongoing process
Implementation of Action Plan on Stockholm Convention																		Partially implemented
Coordination and Cooperation between Basel, Rotterdam, Stockholm Conventions in Nepal																		Ongoing process and also adopted SAICM, needed effective implementation of SAICM

Cooperation and Coordination of Activities Concerning Promotion of BAT and BEP																				No BAT and BEP adopted
Ban on the use of POPs containing materials																				Some POPs are still imported and used e.g. PCBs, PCBs contaminated oil and welding machine are still used.
Ban on the use of chemicals potential for generating POPs																				Plastic Production and Incineration has not been banned
Ban on open burning of kitchen and garden waste in urban areas																				Open burning of Kitchen and garden waste is not banned but the burning of Agriculture waste has been banned.
Formulation/Amendment of Integrated Waste Management Policy and Amendment of SWMRM Act																				New Solid Waste Management Act 2011 and Regulation 2013 has been enacted
Formulation of Hazardous Chemicals Management Rules																				Still in draft stage
Harmonization of sector legislation																				Ongoing process
Establishing Information Education and Communication (IEC) System																				No IEC system of POPs has been established yet.
Further strengthening and expanding the scope of alternate energy program for household & industrial use																				Efforts are made and continued and ongoing
3.3.2: Measures to reduce or eliminate releases from intentional production and use																				
Harmonizing of sectoral laws and amendment with respect to time requirement and in line with POPs convention Article 3 (point 3 & 4) and Annex D.																				POPs are never intestinally produced in the country but used in many purposes e.g. Lindane, PCBs . No harmonization of laws (EPA, Pesticide Act) has been made in light with the

																				threshold limit for IEE and EIA.
Establishing and strengthening institutional aspect of both line ministries (MOAC and MOEST) for permanent set up of monitoring mechanism.																				No POPs Monitoring set up developed in either ministries.
3.3.3: Production, import and export, use, stockpiles and wastes of Annex A POPs pesticides (Annex A, part 1 chemicals)																				
Preparation and adoption of a strategy for complete inventory and collection of obsolete pesticides																				No second inventory has been made
Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee POPs wastes																				No control mechanism and Inspection bodies to oversees POPs waste has been established
Safe packaging and labelling and safe interim storage of obsolete pesticides until final disposal																				Completed for the one identified in first inventory but not beyond that period the government owned warehouses. Thus some stockpiles were left with dealers.
Transport of obsolete pesticides and contaminated soil and containers to disposal site for disposal in line with Basel and Stockholm Conventions																				Transportation of obsolete pesticide were only made , not for the soil
Site stabilization and remediation																				Not done
Establishment of a system for control of illegal import, application and balance between import and demand of pesticides																				Illegal import control system is not in place Further accumulation has been found
3.3.4: Production, import and export, use, identification, labeling, removal, storage and disposal of PCBs and equipment containing PCBs (Annex A, part II chemicals)																				

Updating of transformer database along with labeling and tagging of decommissioned and in use transformers		Partially done and ongoing
Collection of information on retrofilling		Partially done and ongoing
Construction of warehouses to store PCB wastes (articles and oil)		Warehouse has not been constructed
Replacement of PCBs contaminated oil and articles		Partially done and Ongoing
Formulation of Guidelines for collection, storage, further use and transportation		Guideline developed but not finalized and adopted
Disposal of PCB wastes		Partially done. Required to develop the project and program
Ask welding workshops to stop using old oil and to return		Not such notice has made yet , very much needed
On-site testing by portable Test-kit		Partially done but result is not in public domain
Control of illegal import and use of PCBs contaminated oil		PCB is still legally imported , not matter of illegal
3.3.5: Production, import and export, use, stockpiles and wastes of DDT (Annex B chemicals) if used in the country		
		DDT has not been imported
3.3.6: Register for specific exemptions and the continuing need for exemptions (article 4)		
		Nepal latter filed exemption of Lindane, 2014 is end Nepal need to file exemption for Ensosulfan as well
3.3.7: Measures to reduce releases from unintentional production (article 5)		

Updating/revising inventory of Annex C POPs in Nepal																				No revision has been made so far
Household energy switch for controlling emission of PCDD/Fs																				Not significant change in biomass energy reduction rather increases.
Capacity building activities																				Some capacity building has been made by CEPHED to the hospital sector to shift to non-burning technology
Controlling open burning of agriculture residues and forest fires																				If the recent decision of MOAg for the restriction of Agriculture residue will be effective will substantially reduce the PCDD/F releases
Establishment of Electrical Crematoria																				Not established yet
Establishment of hazardous waste management facility																				Not established yet
Establishing system for long-term permanent monitoring and reporting on Annex C POPs																				No monitoring system in place
Regulatory framework for release limit values																				No regulatory limit has been fixed yet
Economic instruments for release reduction																				Subsidies in renewable energy promoted
3.3.8: Measures to reduce releases from stockpiles and wastes (article 6)																				
Identify and Mapping of Stockpiles, Products, and articles consisting of or containing chemicals listed either in Annex A, B and C.																				Partially done by MOSTE Some under process by CEPHED

Preparation of an Inventory of Sewage Treatment Plants Number of sewage treatment plants that are in the inventory																				No inventory has been made yet
Determination of the extent of the contaminated areas and determination of the level of contamination																				Not yet done, CEPHED has doing soil testing from 20 located out of 24 identified Obsolete Pesticide warehouse. Rest other contaminated sites are not explored at all
Establishment of procedures for elimination of releases from stockpiles and wastes																				No procedure has been established
Preparation of economical analyses for the sustainability of the process of recycling-burning dumping technology																				Not yet done
3.3.9: Identification of stockpiles, articles in use and wastes																				
Preparation and adoption of a strategy for inventory completion																				Complete inventory strategy has not been adopted
Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee stockpiles, articles in use and wastes																				No Control mechanism and Inspection bodies for stockpiles, article in use and waste
Development of schemes for positive influence in the business sector, having active roles and responsibilities in this area																				No scheme has been launched yet
3.3.10: Manage stockpiles and appropriate measures for handling and disposal of articles in use																				
Preparation and adoption of a strategy for handling and disposal of articles in use																				No strategy has been developed and adopted
Development of schemes for positive																				No scheme has been launched yet

influence in the business sector, having active roles and responsibilities in this area																				
Preparation and establishment of control mechanisms and cooperation of inspection bodies concerning handling and disposal of articles in use																				No Control mechanism and Inspection bodies for stockpiles, article in use and waste
3.3.11: Identification of contaminated sites (Annex A, B and C Chemicals) and remediation in an environmentally sound manner																				
Preparation of an implementation strategy for these activities																				No strategy has been prepared and implemented
Preparation of a methodology of the assessment																				No need to develop this but need to adopt the internationally adopted methodology. Not done
Prioritization of contaminated areas for their recovery, taking into account mainly the impact of contamination on human health or its environmental risk																				No initiative from Government Sector, CEPHED has started site assessment only
Preparation of technological and technical work procedures																				No initiative taking place
Carrying out the decontamination activities																				No decontamination of any site has made so far
3.3.12: Facilitating or undertaking information exchange and stakeholder involvement																				
Preparation of institutional and technical set up to establish National Focal Point																				No information desk and Information Officer designated
Preparation of stakeholders list																				This is ongoing process
Development of a system for collection and exchange of information																				No system has been developed and thus not in place
Definition of formats for information																				No defined format for information

exchange on POPs																				exchange
3.3.13: Public awareness, information and education (article 10)																				
Preparation and realization of training for government officials of different levels for implementation of the Stockholm Convention																				Some government official have participated in POPs related training but not exactly working on POPs issues
Preparation and realization of training for business sector representatives																				For Grill entrepreneur and Hospitals , CEPHED has organized series of training workshop. Some are with DOE collaboration
Educational activities focusing on POPs , their sources, applications, uses and hazards and management of POPs wastes																				Few included into the College level program but not sufficient
Preparation and implementation of countrywide information and educational campaign concerning hazards of POPs																				For Grill entrepreneur and Hospitals , CEPHED has organized series of training workshop. Some are with DOE collaboration
3.3.14: Effectiveness evaluation (article 16)																				
																				This is the first compliance assessments of NIP
3.3.15: Reporting																				
																				Reporting has been made in 2010 but very partial information has been submitted. Next due reporting by August 2014
3.3.16: Research, development and monitoring (article 11)																				
Preparation of an inventory of institutions																				Not done after NIP preparation

involved in POPs research activities																				
Establishment of new and strengthening of existing labs at national level																				Some Initiative are made but not known about its functionality
Establishment of a network for cooperation, data and information exchange among these institutions																				Not well established any formal network for information exchange
Establishment of internationally accepted system																				Not established
Development of scheme for adoption of the system by research/ scientific institutions																				Not any scheme developed yet
Development of standards for quality assurance and control																				No any standard related to POPs has been set yet
Development of scheme for adoption of the standards by scientific institutions																				No Scheme has been developed and adopted
3.3.17: Technical and financial assistance (articles 12 and 13)																				
																				Very few technical and financial assistance has been realized

Annex 2. Mandatory Standard of Incinerator enacted on 22 December 2014 by the Government of Nepal

Government of Nepal enacted the standard for Incinerator (Chimney height and Emission for Incinerator) as per the provision of Environment Protection Regulation 1997 (Rule 15).

सूचना २

नेपाल सरकारले वातावरण संरक्षण नियमावली, २०५४ को नियम १५ ले दिएको अधिकार प्रयोग गरी नेपालमा सञ्चालन हुने इन्सिनिरेटरहरुको लागि देहाय बमोजिमको मापदण्ड तोकेकोले यो सूचना प्रकाशन गरिएको छ:

१. इन्सिनिरेटरको सञ्चालन, सञ्चालनबाट निष्काशन हुने धुवाँ तथा चिम्नीको उचाई (Chimney Height and Emission for Incinerator):

S.N.	Parameters	Unit	Limit	Remarks
1.	Chimney Height from the ground level	Meter (m)	Higher than 11	The chimney should be higher than height of the existing surrounding houses
2.	Suspended Particulate Materials (SPM) at 11% Oxygen (O_2) reference	Milligram per Normal Cubic Meter (mg/Nm^3)	50	
3.	Carbon monoxide (CO)	Milligram per Normal Cubic Meter (mg/Nm^3)	50	
4.	Total organic carbon (TOC)	Milligram per Normal Cubic Meter (mg/Nm^3)	20	
5.	Dioxin/Furan	Nano gram per Toxic Equivalent per Normal Cubic Meter ($ng/TEQ/Nm^3$)	0.1	
6.	Hydrochloric acid (HCl)	Milligram per Normal Cubic Meter (mg/Nm^3)	50	
7.	Hydrogen fluoride (HF)	Milligram per Normal Cubic Meter (mg/Nm^3)	4	
8.	Oxides of Sulphur (SO_x)	Part per Million (ppm)	200	
9.	Oxides of Nitrogen (NO_x)	Part per Million (ppm)	250	
10.	Lead (Pb), Same for Chromium (Cr), Beryllium (Be), Argon (Ar), Arsenic (As), Antimony (Sb), Barium (Ba)	Milligram per Normal Cubic Meter (mg/Nm^3)	1	
11.	Cadmium (Cd) Same for Thorium (Th)	Milligram per Normal Cubic Meter (mg/Nm^3)	0.05	
12.	Mercury (Hg) and its compounds	Milligram per Normal Cubic Meter (mg/Nm^3)	0.05	

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Source: http://moste.gov.np/image/data/Press%20Release/NOTICE/Nepal_Gazette.pdf